WATER SUPPLY RELIABILITY

Because no single strategy will resolve California's water supply problems, CALFED agencies are implementing a diverse portfolio of projects and approaches.

Through partnerships with local and regional agencies, the CALFED agencies aim to increase water supplies, ensure efficient use of water resources and add flexibility to California's water system.

Summary of Accomplishments

- Significant headway has been made on efforts to expand groundwater and surface water storage. More than $240 million in grants and loans has been awarded statewide for more than 160 local groundwater storage and conjunctive use studies and projects. The local cost share on these projects is approximately $900 million. Partnerships with local and regional agencies are ongoing in 18 areas of the state to improve groundwater management and develop conjunctive use projects and programs. Major progress has been made to investigate five potential surface water storage projects.
- Key advances have been achieved on conveyance efforts such as the South Delta Improvements Program (SDIP), an intertie between the Delta Mendota Canal and California Aqueduct, and other actions that will improve water quality for users in and near the Delta.
- CALFED agencies have helped stretch existing water supplies by facilitating water transfers totaling more than 700,000 acre-feet in 2004. The transactions moved water from willing sellers to areas of need while protecting other water users, local economies and the environment.
- Investments in water conservation and recycling projects have already generated significant water savings and will continue to pay off by reducing water demands, improving water quality and freeing up water to meet habitat and ecosystem needs.
- Through the Environmental Water Account (EWA), CALFED agencies have protected fish and reduced conflicts at Delta pumping facilities. In the past four years, the EWA has made more than 1 million acre-feet of water available to better protect the Delta without reducing deliveries to cities and farms while at the same time benefitting species listed in the Conservation Agreement.

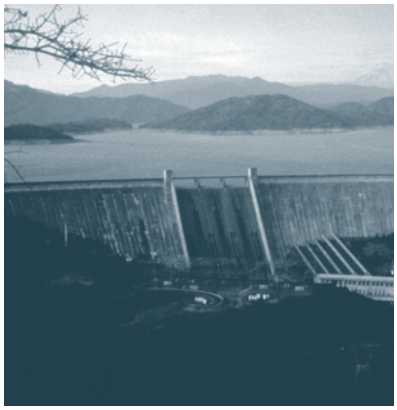
CALFED Plan

Record of Decision (ROD)

The CALFED Plan includes the following water supply reliability goals:

- Surface Storage: Expand surface storage capacity at existing reservoirs and strategically located off-stream sites by up to 3.5 million acre-feet: North-of-the-Delta off-stream storage, Shasta Lake enlargement, Los Vaqueros Reservoir expansion, In-Delta storage and additional storage in the Upper San Joaquin (Friant), or a functional equivalent.
- Groundwater: Develop locally managed and controlled groundwater storage and conjunctive use projects in the Sacramento and San Joaquin valleys with a total of 500,000 to 1 million acre-feet of additional storage capacity.
- Conveyance: Increase permitted pumping at State Water Project (SWP) facilities from current limit of 6,680 cubic feet per second (cfs) to 8,500 cfs and eventually to 10,300 cfs. Design and construct new fish screens at Clifton Court Forebay and Tracy pumping plant, and dredge and install permanent operable barriers to improve water levels and water quality in the South Delta.
- Water Use Efficiency: Implement an aggressive water use efficiency program to make the best use of existing water supplies, including: definition of appropriate water measurement; certification of urban best management practices (BMPs) and refinement of quantifiable objectives for agricultural water use efficiency.
- Water Transfers: Promote an effective water transfer market that protects water rights, the environment and local economies.
- Environmental Water Account: Manage an Environmental Water Account to provide benefits to fish as well as water supply reliability to farms and cities.

WATER SUPPLY RELIABILITY



Water Supply Reliability Accomplishments by Region

Sacramento Valley

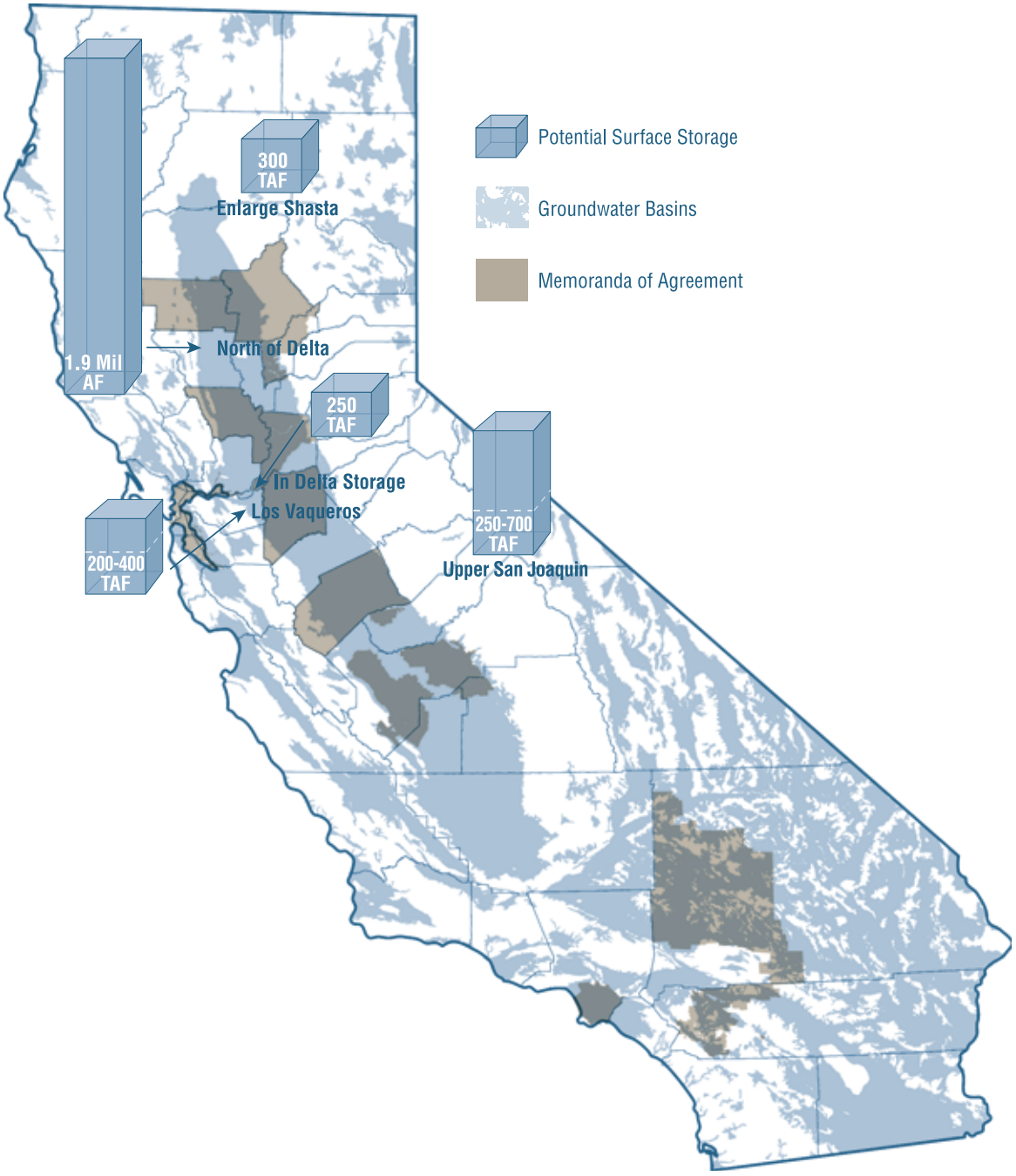
- $35.7 million invested in 37 local projects to improve groundwater management and expand conjunctive use in the Sacramento Valley, with a potential water supply yield of 30,000 acre-feet annually.
- Progress made on studies for potential north-of-Delta off-stream storage and Shasta Lake enlargement. The proposed projects are among the five surface storage options being studied to increase storage capacity and provide flexibility to the state's water system.
- $11 million in grants awarded for agricultural and urban water use efficiency programs.
- Water transfers streamlined and transfer agreements facilitated to protect local water users, economies and ecosystems.

Bay and Delta Regions

- $4.2 million invested in five local projects to improve groundwater management and expand groundwater storage.
- The Bay Area Regional Water Recycling Program was included in the federal CALFED Authority bill.
- Draft engineering feasibility study for in-Delta storage project released by the state for a 45-day public review in February, 2004. Two public workshops were held. Additional analysis will be done on issues related to water quality, stability and economics.
- Progress made on design and environmental review of South Delta Improvements Program.
- Appraisal study underway on San Luis Low Point Improvement Project to address water quality and conveyance issues for South Bay water users.
- Modeling studies completed for the Delta-Mendota Canal and the California Aqueduct Intertie. The draft Environmental Assessment/Initial Study was circulated for public review in November with a public comment period in December 2004.
- Additional studies on new juvenile salmon tracking technologies completed near Georgiana Slough. Information is being used to prepare a larger fish tracking and hydraulic study in the North Delta in 2005 to investigate potential fisheries and flow-related impacts associated with Delta Cross Channel gate operations.

Groundwater and Potential Surface Water Storage

- *Continued studies on 5 potential surface storage projects.*
- *Signed agreements for 17 groundwater partnerships and Memoranda of Agreement.*
- *Invested more than $240 million in 163 groundwater projects with a potential yield of 300,000 acre-feet per year.*



WATER SUPPLY RELIABILITY

Cross-regional benefits

While the CALFED Program's regional approach emphasizes local involvement and strives to address local issues and needs, many actions in specific regions directly benefit other regions and the state as a whole. These include:

- Implementing new groundwater and surface water storage projects improves water quality and flexibility for water supply reliability throughout the state for agricultural and urban uses as well as in-stream flows that provide water quality and ecosystem benefits.
- Improving water conveyance in the South Delta increases water supplies for agricultural and urban uses and improves operational flexibility of the CVP & SWP; ensures water quality and quantity for South Delta agricultural diverters; and increases the survival of outmigrating adult salmon from the San Joaquin River.
- Investing in water recycling and water use efficiency programs reduces water demands in all regions and relieves pressure on the Delta and the water delivery system.
- Acquiring, storing and releasing water through the Environmental Water Account provides water for fish protection and keeps water supplies flowing to cities and farms in the Bay-Delta and beyond.
- Streamlining the approval process of water transfers helps stretch supplies and reduces regional demands on the Delta.
- Contra Costa County voters in March 2004 approved a ballot measure to move forward with studying Los Vaqueros reservoir expansion.
- $15.7 million invested in 35 local agricultural and urban water conservation programs.
- $43 million in grants awarded to increase water recycling by 3,500 acre-feet a year.
- Site-specific diversion improvements made to assure water supply to south Delta farms.

San Joaquin Valley

- $77 million invested in 55 local projects to improve groundwater management and expand groundwater storage in the San Joaquin Valley, with a potential water supply yield of 64,000 acre-feet annually.
- $8.6 million invested in agricultural water conservation programs that will save 8,524 acre-feet of water per year. Another $3.1 million invested in local urban conservation programs.
- Milestones adopted for agricultural conservation to help evaluate regional progress and identify barriers to implementation.
- Progress made on developing an on-farm water efficiency incentive program with significant public input.
- Water supply reliability improved and conflicts over Delta exports reduced through Environmental Water Account actions.
- 70 percent water supply delivery target met for CVP contractors.
- Progress made on Upper San Joaquin River Basin Storage Investigation.

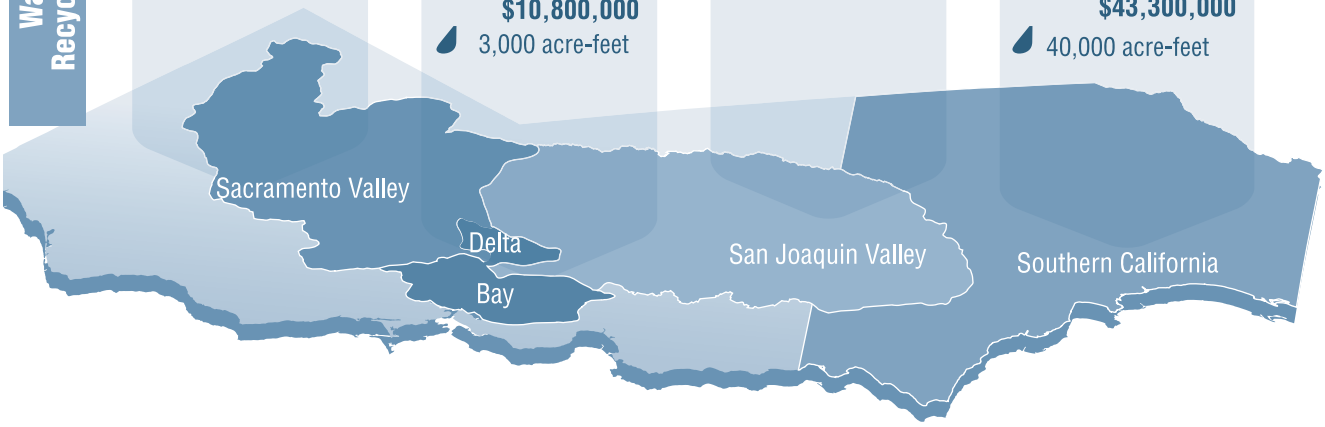
Southern California

- More than $88.7 million invested in 44 local projects to improve groundwater management and expand groundwater storage in Southern California basins, with a potential water supply yield of more than 115,000 acre-feet annually.
- $28.5 million invested in urban water conservation programs that will save more than 9,000 acre-feet of water a year.
- $440 million in local, state and federal funds invested in water recycling programs that will recycle more than 408,000 acre-feet of water a year.
- Water supply reliability improved through the Environmental Water Account.
- Local water supplies augmented through water transfers facilitated by CALFED agencies.

Water Use Efficiency Accomplishments

Through the Water Use Efficiency Program, CALFED agencies are making targeted investments in cost-effective, local water conservation and recycling programs throughout the state. Funding grants and loans in such areas as agricultural water conservation, urban water conservation and water recycling helps meet the Bay-Delta Program's water supply reliability, water quality, and ecosystem restoration objectives.

	Sacramento Valley	Bay & Delta	San Joaquin Valley	Southern California
Ag Water Conservation	35 Projects **$168,000** **$1,100,000** **$2,000,000** 6,000 acre-feet	7 Projects **$89,100** **$679,300** **$10,400**	64 Projects **$178,000** **$4,500,000** **$4,000,000** 9,000 acre-feet	7 Projects **$4,900** **$100,000** **$163,000**
Urban Water Conservation	51 Projects **$1,100,000** **$1,700,000** **$5,000,000** 3,000 acre-feet	28 Projects **$4,700,000** **$200,000** **$10,500,000** 12,000 acre-feet	8 Projects **$346,000** **$59,700** **$2,800,000** 7,000 acre-feet	45 Projects **$14,200,000** **$177,000** **$14,200,000** 9,000 acre-feet
Water Recycling		3 Projects **$32,400,000** **$10,800,000** 3,000 acre-feet		24 Projects **$335,700,000** **$68,600,000** **$43,300,000** 40,000 acre-feet



Number of Projects Awarded / Funding: $Local $Federal $State / Reported Potential Yield

WATER SUPPLY RELIABILITY

PROJECT HIGHLIGHT

Environmental Water Account

Overview: *The CALFED Program's Environmental Water Account (EWA) is designed to provide protection to the at-risk native fish of the Bay-Delta estuary through environmentally beneficial changes in the operations of the State Water Project (SWP) and federal Central Valley Project (CVP) at no uncompensated cost to the projects' water users. The EWA replaces the water used for fish, protecting the SWP and CVP water delivery systems by providing water at critical times to help meet environmental needs without water supply impacts on cities, farms and businesses. The EWA and the Ecosystem Restoration Program together form the cornerstone of CALFED's efforts to meet its environmental commitments.*

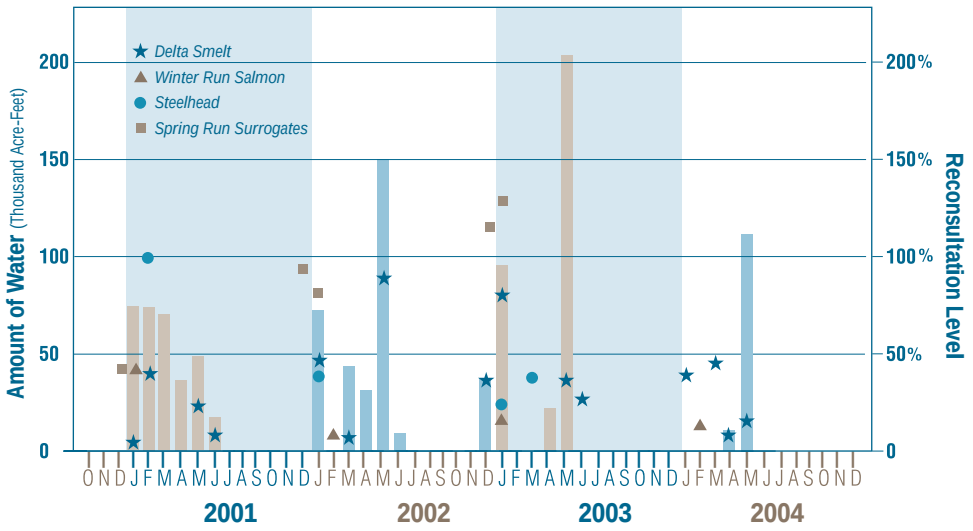
Objectives: *The EWA was created to address two problems - declining fish populations and water supply impacts from Delta pumping reductions to protect fish. Its goal is to better protect at-risk native fish species such as salmon, steelhead and delta smelt by making it possible to modify water project operations in the Bay-Delta without disrupting water deliveries. The EWA agencies buy water from willing sellers or divert surplus water when it is safe for fish. The water is then banked, stored, transferred or released as needed to protect fish and compensate water users with a replacement water supply when EWA fish actions affect exports.*

EWA in Action: *In late spring 2004, when concern for delta smelt was high and real-time monitoring indicated that young delta smelt were in the vicinity of Delta export pumps, water managers reduced pumping to improve survival and allow fish to move out of the interior Delta. EWA water was used to offset export reductions that would otherwise have reduced project supplies. The experience is a sharp contrast to the conflicts in the 1990s, when periodic concerns about the loss of federally-listed fish at the Delta pumps led to pumping curtailments that reduced water deliveries by the projects to their contractors.*

EWA Progress: *The EWA was launched in 2000 as a four-year experiment. After review of the efficacy of the EWA and completion of environmental analyses, the five EWA agencies agreed in September 2004 to extend the EWA for three more years through the end of 2007. The state and federal fish and wildlife agencies also agreed to extend the annual provision of regulatory commitments to the projects under state and federal law provided the necessary EWA assets are obtained by DWR and Reclamation and the ERP is funded at a level sufficient to provide adequate protection and recovery of covered species.*

In November 2004, the EWA Technical Review Panel convened a two-day workshop to review the first four years of EWA operation and discuss continuation of a long-term EWA.

EWA Expenditures



PROJECT HIGHLIGHT

Delta Improvements Package

In August 2004, the California Bay-Delta Authority adopted the Delta Improvements Package, linking a number of key actions outlined in the Record of Decision. This package of actions identified water quality and water conveyance modifications in the Delta that will improve water supply reliability for in-Delta and export users, support continuous improvement in drinking water quality, and protect and restore the Delta ecosystem.

The package recognized that key decisions on Delta components cannot be made in isolation. Specific actions include: South Delta Improvement Program (SDIP), Delta Mendota Canal and California Aqueduct Intertie, In-Delta and San Joaquin River water quality improvements, EWA extension, and improvements in CVP and SWP integrated operations. The package also includes a commitment to continue to integrate science into the planning and implementation of Delta Improvements Package actions. As an example, to understand how water project operations impact fish and water quality, investments are being made in cooperative hydrodynamic and fisheries investigations to assist managers in understanding their actions.

A number of key actions in the package are underway. Accomplishments in 2004 include:

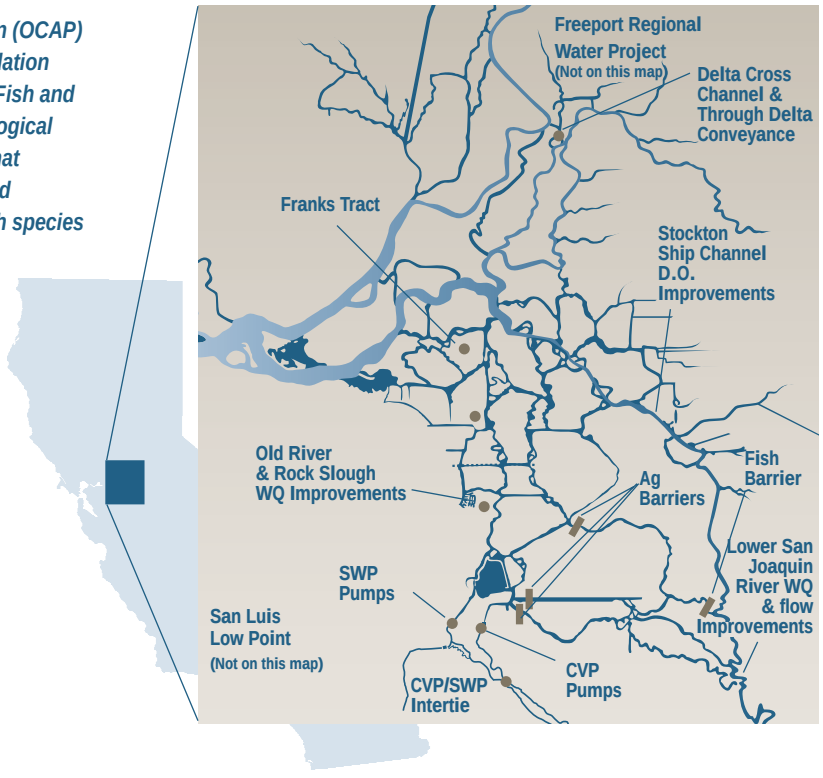
***OCAP:** The CVP and SWP Operations Criteria and Plan (OCAP) Biological Assessment was finalized and lays a foundation for current and future CVP and SWP operations. The Fish and Wildlife Service and NOAA Fisheries also issued Biological Opinions. The Resource agencies have determined that continued operations will not jeopardize the continued existence of currently threatened and endangered fish species (Winter and Spring run Chinook salmon, Coho salmon, delta smelt, and Central Valley steelhead).*

***South Delta Improvements Program (SDIP):** The temporary barriers program marked progress with preparation of environmental documentation on permanent agricultural and fish barriers associated with the increased permitted pumping capacity at the State Water Project Delta pumping plant. Early consultation with the federal fisheries agencies on the SDIP was included as part of the OCAP Biological Opinions.*

***Recirculation Study:** A pilot recirculation study was conducted in August 2004, following release of a final hydrologic modeling appraisal study to the State Water Resources Control Board on two preliminary alternatives to recirculate water from the Delta-Mendota Canal through the Newman Wasteway to the lower San Joaquin River for water quality and flow improvement. Preliminary results suggest that recirculation may be effective in augmenting flows and improving water quality on the San Joaquin River.*

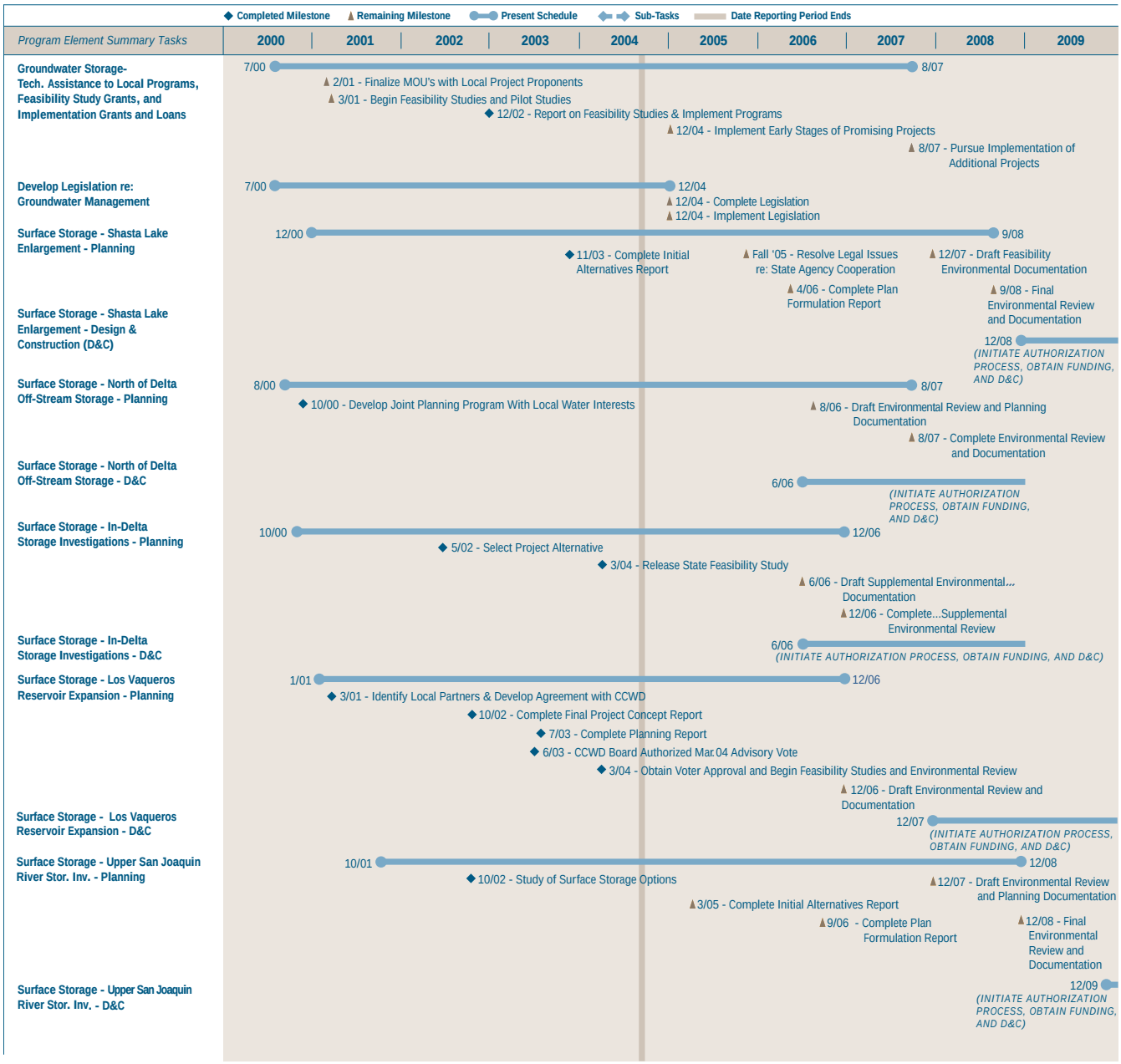
***Stockton Dissolved Oxygen:** Studies are underway to evaluate specific sources of oxygen-depleting substances to assist in the development of detailed load allocations. Other actions include feasibility and demonstration studies of both aeration and non-aeration measures with an aeration demonstration project beginning in 2005 for a two-year period.*

***Environmental Water Account:** The Environmental Water Account was extended through 2007 based on its implementation during the first four years and implementation of Delta Improvements Package actions.*



WATER SUPPLY RELIABILITY

STORAGE



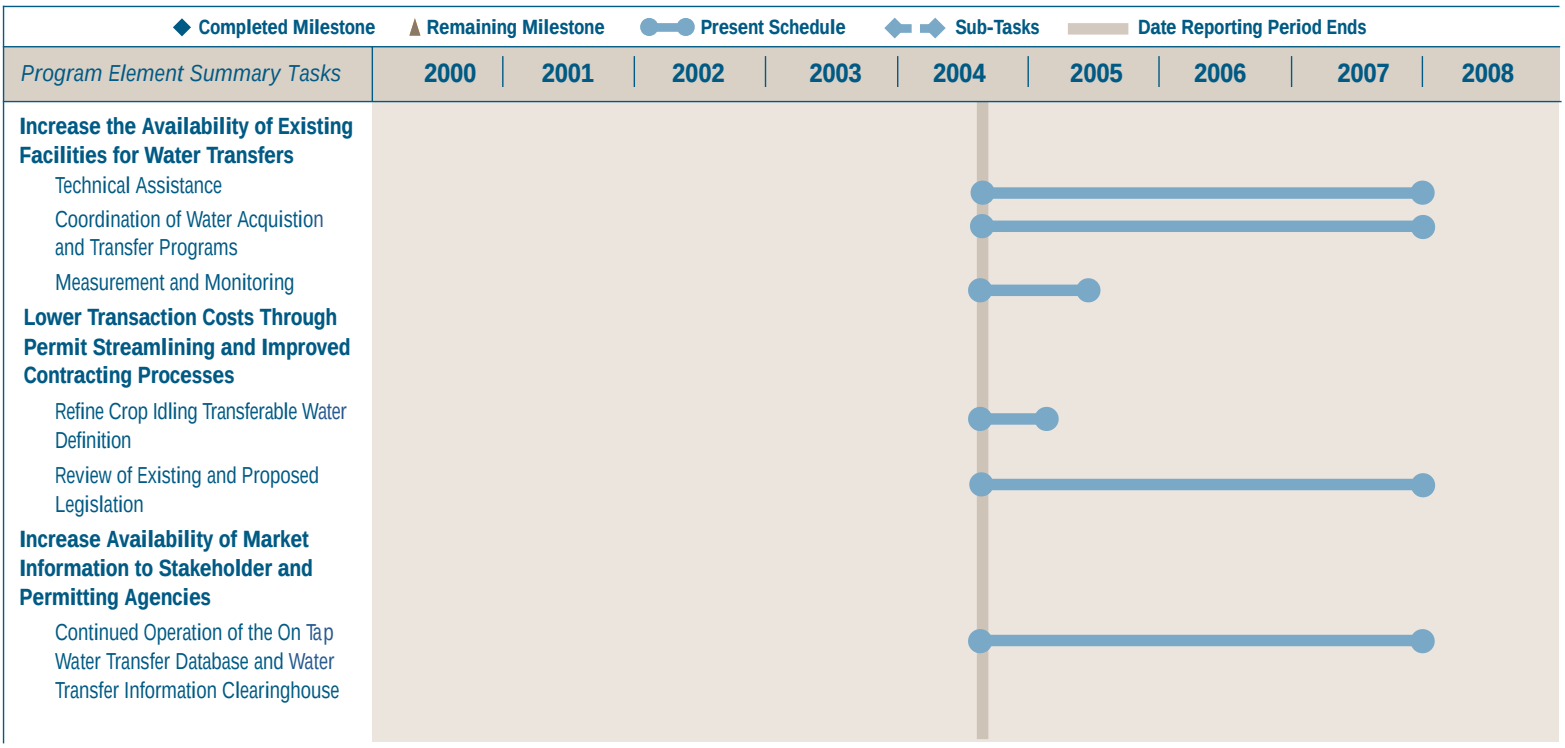
CONVEYANCE

◆ Completed Milestone ▲ Remaining Milestone ●—● Present Schedule ◆—▶ Sub-Tasks ▭ Date Reporting Period Ends

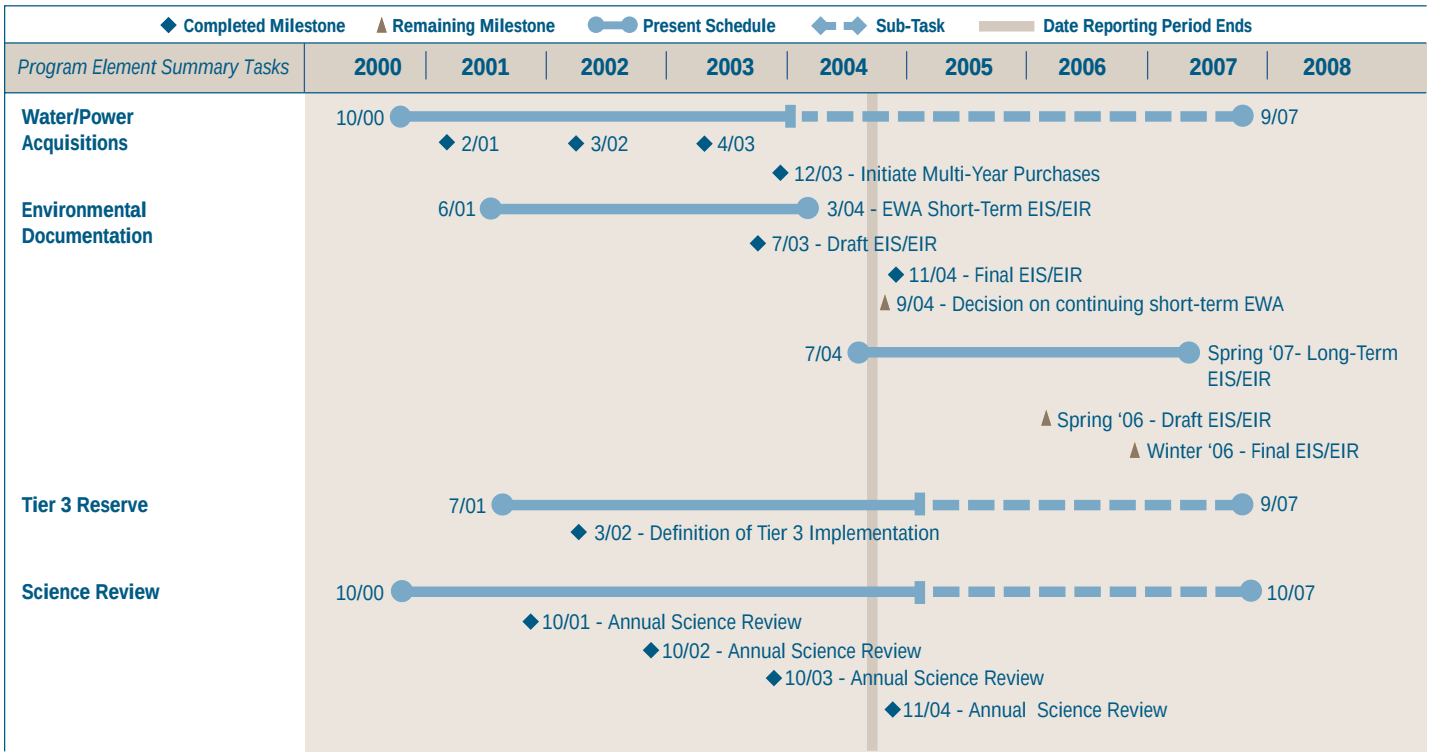
Program Element Summary Tasks	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Interim South Delta Actions/ Operate Temporary Barriers	8/00 (ENVIRONMENTAL DOCS & CONSTRUCTION OCCUR ANNUALLY UNTIL PERMANENT BARRIERS ARE OPERATIONAL)								12/08	
8,500 cfs - Permanent Operable Barriers (DIP)			3/02						1/09	
				◆ 12/02 ROD - Complete EIR/EIS		▲ 10/05 - Complete Final EIR/EIS				
						▲ 1/06 - Secure Regulatory Permits (change pending)				
						▲ 1/06 - Begin dredging/diversion improvements				
						Complete Barrier Construction and Dredging Diversion Improvements - 8/08 ▲				
									Begin 8500cfs Operations - 9/08 ▲	
Clifton Court Fish Screens/ 10,300 cfs		1/01 (THIS SCOPE AND SCHEDULE OF THIS PROJECT IS CURRENTLY UNDER RE-EVALUATION)					7/06			
Tracy Fish Test Facility	8/00 (THIS SCOPE AND SCHEDULE OF THIS PROJECT IS CURRENTLY UNDER RE-EVALUATION)						11/05			
Lower San Joaquin Flood Improvements			2/02							1/13
					◆ 11/03 - Complete draft Concept Project White Paper					
							▲ 5/06 - Secure USCOE PMP and Funding/staffing authorization			
									Prepare River Management Plan - 12/08 ▲	
Delta Cross Channel Re-operation (DIP)	8/00						11/05			
		◆ 10/00 - Begin Operational Studies					▲ 11/05 - Complete Studies & Make Recommendations			
							▲ 1/06 - Implement Recommendations			
Through Delta Facility - Planning (DIP)	8/00							12/07		
	◆ 10/00 - Develop Study Plan						▲ 11/05 - Complete Studies & Make Recommendations			
	◆ 10/00 - Fund & Begin Studies						▲ 1/06 - Seek Funding and Initiate EIR/EIS			
								▲ 12/07 - Complete Final EIR/EIS		
North Delta Flood Control and Ecosystem Restoration Improvements Program	9/00									6/08
						▲ 4/05 - Complete Draft EIR/EIS				
				◆ Early 03 ROD - Complete Envir. Studies		▲ 7/05 - Complete Final EIR/EIS				
					◆ Early 04 ROD - Complete Funding and Design	▲ 9/05 - Complete Project Design & Funding Plan				
						▲ Mid 05 - Decide on Funding and Construction				
									Complete Construction - 11/08 ▲	
Delta Mendota Canal/California Aqueduct Intertie (DIP)			1/02		10/04					
					◆ 11/04 - Complete Draft Environmental Assessment/Initial Study					
					▲ 2/05 - Complete Final EA/Initial Study					
						▲ 10/05 - Begin Construction				
							▲ 12/06 Complete Construction and Begin Operation			
Clifton Court Forebay/ Tracy P. P. Intertie						1/05				6/10
San Luis Reservoir Low Point Improvement Project - Planning		5/01					6/06+			
		◆ 5/01 - Fund Studies of Bypass Canal, etc. & Allocate Funds								
						▲ 11/04 - Complete Draft EIR/EIS				
						▲ 5/05 - Complete Final EIR/EIS				
							▲ 6/06 - Begin Authorization & Funding			
							▲ 6/06 - Begin Final Design & Land Acquisition			
San Luis Reservoir Low Point Improvement Project - Design & Construction						Pending				
Franks Tract (DIP)				12/02						
							▲ 2/06 - Complete Draft EIR/EIS			
							▲ 7/06 - Complete Final EIR/EIS			
							▲ 11/06 - Begin Phased Construction			

WATER SUPPLY RELIABILITY

WATER TRANSFER PROGRAM



ENVIRONMENTAL WATER ACCOUNT



WATER USE EFFICIENCY

◆ Completed Milestone ▲ Remaining Milestone ●—● Present Schedule ◆—◆ Sub-Tasks Date Reporting Period Ends

Program Element Summary Tasks	2000	2001	2002	2003	2004	2005	2006	2007	2008
Science, Monitoring and Evaluation	8/00 ●								● 8/07
						▲ 12/04 - Develop Performance Indicators			
						▲ 12/04 - Comprehensive WUE Evaluation			
Water Measurement	1/01 ●				● 12/03				
					◆ 9/03 - Definition of Appropriate Measurement				
					◆ 9/03 - Draft Agricultural/Urban Water Measurement Definition				
						▲ 12/04 - Draft Water Measurement Legislation			
Quantifiable Objectives	8/00 ●								● 9/07
			▲ 6/02 - Refine Quantifiable Objectives						
						▲ 7/04 - Draft Quantifiable Objectives Report			
Urban Certifications		11/01 ●			● 12/02				
					▲ 12/02 - Implement Urban Certification Process				
Agricultural and Urban Grants and Loans	8/00 ●								● 9/07
	◆ 8/00 - Establish Loan & Grant Program								
				◆ 11/02 - Establish Grant Criteria					
					◆ 5/03 - Select Grants				
Agricultural and Urban Technical Assistance	8/00 ●								● 9/07
					▲ 5/03 - Determine Technical Assistance Needs				
					▲ 7/03 - Draft Technical Assistance Plan				
Water Recycling Loans & Grants, Including Research Grants	8/00 ●								● 9/07
	◆ 8/00 - Establish Loan & Grant Program								
Water Recycling Technical Assistance	8/00 ●								● 9/07
Wetlands Grants and Technical Assistance	8/00 ●								● 9/07
	▲ 8/00 - Establish Loan & Grant Program								
Oversight & Coordination	8/00 ●								● 9/07
	◆ 12/00 - Prepare Program Implementation Plan								
	◆ 8/00 - Establish Agricultural Milestones								
	◆ 12/00 - Establish Advisory Committee								
			▲ 7/01 - Develop Stage 1 Finance Proposal			▲ 12/04 - Determine Funding Needs & Update Finance Plan			